

Remarks

Claims 7-26 are pending.

§ 102 Rejections

Claims 7-26 stand rejected under 35 USC § 102(b) as purportedly being anticipated by Kojima et al. (U.S. Patent No. 4,654,255). The Patent Office asserts that Kojima teaches an adhesive composition made from 0.01 to 10 parts by weight of an unsaturated fatty acid combined with 100 parts by weight epoxy group containing olefin. Further, the Patent Office asserts that the melting point limitations of claim 8 inherently meets the claimed limitation. Applicants respectfully traverses the rejections.

With independent claim 7, Applicants claim (emphasis added):

an acrylic-based thermally conductive composition comprising:

a binder component containing a crystalline acrylic polymer with an alkyl group of 18 carbons or more and a thermally conductive filler.

The Patent Office has not shown where Kojima describes, teaches, or suggests an acrylic-based thermally conductive composition. The Patent Office noted that Kojima describes an epoxy-containing olefin polymer. Kojima routinely recites throughout the specification an olefin polymer. More specifically, for example adhesive resin is referred to as an olefin polymer in the abstract, “epoxy-group olefin containing polymer used in the present invention...” (col. 2 lines 24-25), and “[t]he epoxy group-containing olefin polymers are prepared...” (col. 2 line 61). Thus, it is believed that this rejection is improper and should be withdrawn.

Claims 8-26 depend directly or indirectly from claim 7. Claim 7 is patentable for at least the reason given above. Therefore claims 8-26 also should be patentable.

§ 103 Rejections

Claims 7-26 stand rejected under 35 USC § 103(a) as purportedly being unpatentable over Kojima et al. (U.S. Patent No. 4,654,255). The Patent Office rejection is based on the Kojima disclosures cited in the 102 rejection and the Patent Office further states that, although the Kojima reference is silent with respect to “crystalline” and “non-crystalline” limitations, that

it would have been obvious to one skilled in the art to optimize the overall crystallinity levels of the Kojima polymer via routine experimentation and selection of monomers.

To establish a *prima facie* case of obviousness, three criteria must be met: (i) there must be a suggestion or motivation in the cited art or shown in the ordinary skill of the art to combine the references, (ii) there must be a reasonable expectation of success, and (iii) all elements of the claim limitations must be taught or suggested. MPEP §2142.

As noted above, Kojima has not been shown to describe, teach, or suggest an acrylic-based composition. Thus, Kojima has not been shown to describe, teach, or suggest all elements of the present invention.

Further, as the Patent Office acknowledges, Kojima is silent with respect to crystalline and non-crystalline limitations of the polymers. No additional reference is provided for the missing limitations. Again, Kojima has not been shown to describe, teach, or suggest all elements of the present invention.

Thus, the rejection under 35 USC § 103(a) is unwarranted and should be withdrawn.

Claims 7-26 also stand rejected under 35 USC § 103(a) as purportedly being unpatentable over Schmitt et al. (U.S. Patent No. 5,412,035) in view of Rinde et al. (U.S. Patent No. 5,470,622). The Patent Office asserts that Schmitt teaches a pressure sensitive adhesive comprised of a based resin, which can be polyacrylate and an additive, which is a side chain crystallizable polymer. The Patent Office admits that Schmitt does not teach a thermally-conductive filler. Therefore, the Patent Office combines Schmitt with Rinde, which the Patent Office asserts teaches an adhesive comprised of a thermoplastic and a thermosetting resin, where the thermoplastic resin can include aryl resins such as polymethyl methacrylate and thermally conductive fillers can be distributed into the adhesive for efficient heat transfer.

Schmitt, as acknowledged by the Patent Office, does not disclose, teach, or suggest a filler that is thermally conductive. Rinde is cited with the assertion that it would have been obvious to one of ordinary skill in the art to add a thermally conductive filler to the adhesive in Schmitt by following the teaching of Rinde of using thermally conductive filler to achieve thermally conductive adhesives. However, the Patent Office has not provided any proper motivation to combine these references, absent Applicants own teachings.

First, Rinde teaches a thermoset adhesive in contrast with Schmitt's pressure sensitive adhesive. The Patent Office has shown nothing to in the art to motivate the skilled person to combine these opposing categories of adhesives.

Further, Rinde expressly teaches away from a crystalline polymer, contradicting any motivation to combine. More specifically, for example, the Patent Office (p. 4, ¶3) cited Rinde for “[t]he thermoplastic resin can include acrylic resins such as polymethyl methacrylate (Column 4, line 9)”, however the disclosed sentence in its entirety states:

“Illustrative amorphous thermoplastic resins that can be used in the practice of this invention are polysulfones, polyethersulfones, polystyrene, polyphenylene oxide, amorphous polyamides, phenoxy resins, amorphous polyimides, polyetherimides, polyetherimide/silicone block copolymers, polyurethanes, amorphous polyesters, polycarbonates, acrylic resins such as polymethyl methacrylate, styrene/acrylonitrile and styrene block copolymers.”

Col. 4 lines 3-10 (emphasis added).

Thus, the polymethyl methacrylate materials are described by Rinde as amorphous.

Additionally, Rinde states, “[t]he preferred class of thermoplastic resins may be defined as amorphous thermoplastic resins, that is resins which are essentially amorphous.” (Col. 3 line 57-59). In contrast, the present invention requires, *inter alia*, a crystalline acrylic polymer (see, e.g., claim 7). Thus, it is believed that the Patent Office has shown all elements of the present invention and the Patent Office has not shown any proper motivation in the art to make the asserted combination. Thus, the rejection should be withdrawn.

Claims 8- 26 depend directly or indirectly from claim 7. Claim 7 is patentable for at least the reasons given above. Therefore claims 8-26 also should be patentable.

In view of the above, it is submitted that the application is in condition for allowance. Reconsideration of the application is requested. Allowance of the pending claims at an early date is respectfully solicited.

Respectfully submitted,

30-April-2007

Date

By: /Dean M. Harts /

Dean M. Harts, Reg. No.: 47,634

Telephone No.: 651-737-2325

Office of Intellectual Property Counsel, 3M Innovative Properties Company, Fax 651-736-3833
DMH/JL/spg